EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This environmental impact statement (EIS) has been prepared by the U.S. Fish and Wildlife Service (USFWS or Service) in cooperation with the U.S. Army Corps of Engineers. It outlines the potential environmental impacts associated with implementation of the Otay River Estuary Restoration Project (ORERP or project), proposed by the Service in partnership with Poseidon Resources (Channelside) LP (Poseidon). The ORERP would implement the habitat restoration objectives of the *San Diego Bay National Wildlife Refuge Comprehensive Conservation Plan* (CCP; USFWS 2006), and fulfills the applicable terms and conditions of the permits issued to Poseidon by the California Coastal Commission and San Diego Regional Water Quality Control Board for the Carlsbad Desalination Project.

This EIS was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), and in conformance with the Council on Environmental Quality's NEPA guidelines. The Service is the Federal lead agency under NEPA. The U.S. Army Corps of Engineers, based on its jurisdiction by law and special expertise pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act (33 U.S.C. 403), has agreed to cooperate and participate as a cooperating agency, pursuant to Title 40 of the Code of Federal Regulations, Section 1501.6, on the development of the ORERP EIS.

Although compliance with CEQA is not required to implement projects proposed within the boundaries of the San Diego Bay NWR, implementation of the ORERP requires approvals, permits, and/or certifications from several state agencies (e.g., California Coastal Commission, San Diego Regional Water Quality Control Board) and the Port of San Diego, which are subject to CEQA compliance. As such, this EIS was prepared to aid these state and local agencies in making appropriate CEQA findings. Pursuant to Section 15221 of the CEQA Guidelines, which sets forth rules governing use of a NEPA document to satisfy CEQA, this EIS includes a discussion of mitigation measures and an analysis of the potential for growth-inducing impacts associated with implementation of the proposed action. Sections 4.1 through 4.6 of this EIS include an impact analysis and a discussion of mitigation measures that would be implemented to reduce impacts to below a level of significance. Section 6.2 of this EIS includes a discussion of both action alternatives' potential impacts associated with growth inducement, hazards, and energy. State and local agencies interested in using this EIS to satisfy their CEQA requirements have and continue to work closely with the Service in completing the NEPA review for the ORERP to ensure that the discussions included in this document meet the requirements of CEQA.

This EIS analyzes the project-specific environmental impacts of the ORERP and a reasonable range of alternatives. The analysis is intended to tier from the programmatic EIS and Record of Decision for the San Diego Bay NWR CCP (USFWS 2006; 71 FR 64552–64553) that evaluated

project alternatives to restore the Otay River floodplain and salt ponds. The Final EIS for the San Diego Bay NWR CCP is incorporated by reference into this document.

ES.2 PROJECT DESCRIPTION

The ORERP is a partnership between the Service and Poseidon to create, restore, and enhance coastal wetlands to benefit native fish, wildlife, and plant species, and to provide habitat for migratory seabirds and shorebirds and salt-marsh-dependent species in the South San Diego Bay Unit of the San Diego Bay NWR.

The ORERP site is located at the south end of San Diego Bay, San Diego County, California, within the boundaries of the South San Diego Bay Unit of the San Diego Bay NWR, and is composed of two separate sites: the Otay River Floodplain Site and the Pond 15 Site (see Figure 1-1, Regional Map). The first site is a 33.51-acre area of primarily disturbed uplands on the Otay River floodplain (hereafter referred to as the Otay River Floodplain Site). The Otay River Floodplain Site would be restored to estuarine, intertidal, and upland habitats. The second site, a 90.90-acre active solar salt pond (hereafter referred to as the Pond 15 Site) would be restored to subtidal and intertidal habitats.

Following consideration of the comments provided during the public review period for the Draft EIS and further review of the restoration proposals (Alternatives B and C) several modifications to the original action alternatives have been made. These include the elimination of the proposal to stockpile material on the Otay River floodplain in an area east of Nestor Creek and instead use the up to 36,000 cubic yards of excess material from the excavation of the Otay River Floodplain Site to create an Exposure Reduction Cover (ERC) over an area east of Nestor Creek that contains elevated levels of contaminants, primarily DDT. The ERC, which would be between 1 foot to 1.5 feet in thickness and approximately 23 acres in area, would be revegetated with appropriate native upland vegetation. In addition, the option of transporting excavated material as a slurry through a pipeline to the Pond 15 Site has been eliminated. Excavated material from the Otay River Floodplain Site would be transported either via a conveyor belt or trucks.

ES.3 ENVIRONMENTALLY PREFERABLE AND AGENCY PREFERRED ALTERNATIVE

The Draft and Final EIS identifies three alternatives for the implementation of the ORERP. The three alternatives include the no action alternative (Alternative A) and two action alternatives, an Intertidal Alternative (Alternative B) and a Subtidal Alternative (Alternative C). Additional alternatives were considered but eliminated from further analysis in this EIS, as described in detail in Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis.

The Service has identified Alternative B as the environmentally preferable alternative. Specific differences between the three alternatives evaluated in this document are outlined in Section 2.3.5,

Comparison of Alternatives. Although Alternative B was modified, it continues to be the Service's preferred alternative and the environmentally preferable alternative. Modifications to Alternative B between the Draft and Final EIS are indicated in the Final EIS using a strikeout/underline format.

~~Although Alternative B has been identified as the preferred alternative, the alternative ultimately selected for implementation may include any one of the three alternatives presented in this document or could include a combination of actions from the range of alternatives described. Such modifications may occur in response to comments received on the Draft EIS during the public comment period.~~

ES.4 IMPACTS DETERMINED TO BE SIGNIFICANT

Table ES-1 provides a summary of the impacts and associated mitigation measures identified within this ~~Draft~~ Final EIS. Revisions (indicated by strikeout/underline) to the impacts and mitigation measures presented in the Draft EIS have been made as appropriate in response to comments received during the public comment period. Impacts associated with topography/visual quality; geology and soils; paleontological resources; hydrology and water quality; noise; biological resources; cultural resources; land use, traffic circulation, and parking; recreation; utilities; and economics/employment were identified as potentially significant; however, adequate measures have been incorporated into the scope of the project to avoid or minimize potential adverse effects.

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	Topography/Visual Quality	
The installation of the Otay channel protection project feature, including channel armoring, could adversely affect visual quality along this segment of the Bayshore Bikeway. The placement of excess material from this excavation ~~into two stockpiles~~ within the Otay River Floodplain Site could adversely affect visual quality.	**MM-VIS-1**: Should slope armoring along the Otay River channel be deemed necessary, a revegetation plan ~~for the implementation~~and accompanying monitoring plan to address the establishment of vegetative screening ~~adjacent to the Otay Channel Protection project feature (if implemented), and revegetation of on-site stockpiles~~for the affected area shall be approved by the U.S. Fish and Wildlife Service (Service) and the Executive Director of the California Coastal Commission (Commission) prior to the initiation of any grading at ~~any grading in either~~the project ~~site~~. The revegetation plan shall be prepared by a qualified restoration specialist and shall identify the proposed plantings, hydroseed mix, and applicable treatment, monitoring, and success criteria ~~for both areas~~. The revegetation plan shall include the following requirements ~~for each location~~: ~~***Otay Channel Protection vegetative screening***:~~ Following installation of the Otay Channel Protection (if required) as proposed adjacent to the Bayshore Bikeway and Pond 48 (Project Feature 2, as shown on Figure 2-1a of the EIS), low shrub vegetation shall be installed to enhance existing visual screening of the Otay channel. Vegetative screening shall be implemented on the south side of the fence line along the Bayshore Bikeway where channel armoring is visible to cyclists utilizing the Bikeway. Planting of low shrub vegetation shall only be required where existing vegetation does not adequately screen views of the proposed armoring for Otay channel protection project feature. Plant material to be installed and planting density/spacing shall be consistent with existing vegetation located on the south side of Bikeway-adjacent fencing, or as adequate to screen views of the project feature. ~~***Stockpile vegetation***: Immediately upon completion of all material transport activities from the Otay River Floodplain Site, all necessary grading and compaction of the two stockpiles shall be completed and an appropriate hydroseed mix shall be applied to the top and slopes of the stockpiles.~~ The Otay Channel Protection area ~~and stockpile revegetation efforts~~ shall be monitored and maintained during the establishment of the vegetation to control weeds and ensure that ~~both sites~~the site is ~~are~~ meeting applicable success criteria ~~identified in the revegetation plan for vegetative cover~~. If necessary to meet these success criteria, additional hydroseeding and/or plantings shall be conducted and/or adaptive management measures shall be implemented as needed until the Otay Channel Protection area vegetative screening area ~~and stockpiles are~~is	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	adequately vegetated (see Appendix D). ~~Each location~~The revegetated area shall continue to be monitored and maintained for a period of 5 years after the success criteria has been met to ensure that no significant weed infestations or vegetation losses are occurring. Monitoring reports shall be submitted to the Service annually to detail the progress towards achieving the required species and vegetation coverage. Once the approved success criteria have been met, a final report shall be submitted to the Service and the Commission to document completion in accordance with the approved revegetation plan.	
Geology, Soils, and Agricultural Resources		
Adverse effects to habitat and vegetation communities and jurisdictional waters could result from erosion of soils during construction.	**MM-GEO-1**: A project-specific stormwater pollution prevention plan (SWPPP) shall be prepared and approved by the U.S. Fish and Wildlife Service (Service) and the Regional Water Quality Control Board before the start of construction. The SWPPP shall be implemented by the contractor throughout the duration of construction, including while construction activities are temporarily halted during the core nesting season. The best management practices (BMPs) contained in the SWPPP shall include, but are not limited to, silt fences, fiber rolls, gravel bags, and soil stabilization measures such as erosion control mats and hydroseeding to prevent soil erosion and sedimentation during wind and rain events. Implementation of these BMPs as delineated in the SWPPP shall apply to all areas proposed for excavation. Structural BMPs (or suites of BMPs) shall be designed to treat, infiltrate or filter the amount of stormwater runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event, with an appropriate safety factor (i.e., 2 or greater), for flow-based BMPs. The SWPPP shall also include a schedule and protocols for inspection, cleaning and repairing of BMPs. The Service is responsible for ensuring that the contractor implements and maintains the BMPs identified in the SWPPP.	Less than significant
Creation and/or modification of slope~~s and stockpiled~~ material within the Otay River Floodplain Site could result in adverse effects related to erosion.	**MM-GEO-2**: To ensure the long-term stability of all slopes created within the project site, a post-construction erosion control plan shall be prepared by a registered professional engineer or certified hydrogeologist and approved by the Service prior to the commencement of grading. A map or graphic shall be included in the erosion control plan identifying the locations and specific erosion and sedimentation control measures to be implemented. As part of the erosion control plan, the contractor shall be required to confirm that slope gradients are constructed as designed, all post-construction erosion control measures are in place, and the slopes are planted or seeded immediately upon completion of construction activities consistent with the revegetation plan as identified in MM-VIS-1.	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	Planting and/or seeding of slopes ~~and stockpiled~~ material shall be monitored and maintained during establishment of the vegetation to ensure that vegetative cover, as determined by a qualified restoration specialist, is achieved as specified in the revegetation plan identified in MM-VIS-1. ~~In addition to stockpile hydroseeding and establishment of vegetative cover, the following measures shall be implemented, as deemed necessary by a registered professional engineer or certified hydrogeologist, as part of the erosion control plan, to prevent erosion of stockpiled material:~~ • ~~Topographic controls such as contouring and terracing shall be implemented, if necessary, to limit scouring resulting from steeply sloped piles during large rain events.~~ • ~~A trench or drainage channel overlain by rock check dams shall be installed at the base of the stockpiles to divert stormflow away from adjacent wetland areas and treat stormwater runoff during large rain events.~~ • ~~Biodegradable wattles and erosion control blankets shall be installed over the stockpiles until vegetative cover is sufficiently established. Wattles and/or blankets would not need to be removed following vegetative establishment.~~ ~~The stockpiles shall continue to be monitored and physically maintained in perpetuity after the success criteria has been met to ensure that no significant weed infestations or vegetation losses are occurring, and that all required runoff control measures are operating effectively to the satisfaction of the registered professional engineer or certified hydrogeologist. The Service would be responsible for long-term monitoring and maintenance of the stockpiles until their eventual deconstruction.~~	
	Paleontological Resources	
Bay Point Formation is expected to be encountered subsurface; therefore, adverse effects to paleontological resources could	**MM-PALEO-1**: Prior to commencement of any grading activity on site, Poseidon shall retain a qualified paleontologist, subject to the review and approval of the Service. The qualified paleontologist shall be on site during all rough grading and other significant ground-disturbing activities in depths greater than 10 feet below ground surface.	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
occur.	The paleontologist shall prepare a paleontological resources impact mitigation program for the proposed action. The program shall be consistent with the guidelines of the Society of Vertebrate Paleontologists (2010) and shall include the following: • Attendance at the pre-construction conference by a qualified paleontologist or his/her representative. • Development and implementation of a training program for project personnel. • Monitoring of excavation activities by a qualified paleontological monitor in areas identified as likely to contain paleontological resources. The monitor shall be equipped to salvage fossils and/or matrix samples as they are unearthed in order to avoid construction delays. The monitor shall be empowered to temporarily halt or divert equipment in the area of the find in in the event paleontological resources are discovered. • Because the underlying sediments may contain abundant fossil remains that can only be recovered by a screening and picking matrix, these sediments shall occasionally be spot-screened through 1/8- to 1/20-inch mesh screens to determine whether microfossils exist. If microfossils are encountered, additional sediment samples (up to 6,000 pounds) shall be collected and processed. • Preparation of recovered specimens to a point of identification and permanent preservation. This includes the washing and picking of mass samples to recover small invertebrate and vertebrate fossils and the removal of surplus sediment from around larger specimens to reduce the volume of storage for the repository and the storage cost for the developer. • Identification and curation of specimens into a museum repository with permanent retrievable storage. • Preparation of a report of findings with an appended itemized inventory of specimens. When submitted to the Service, the report and inventory would signify completion of the program to mitigate impacts to paleontological resources.	

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	Hydrology and Water Quality	
Sediment moving from Pond 15 into San Diego Bay during and immediately following levee breaching could result in adverse effects to water quality in the immediate vicinity of the project site.	**MM-HYD-1** Just prior to breaching Pond 15, the U.S. Fish and Wildlife Service (Service) shall ensure that the turbidity level measured in Pond 15 does not exceed 20 percent of the turbidity level measured in the area of the Bay located adjacent to Pond 15. If the turbidity level in Pond 15 is found to exceed the 20 percent threshold, breaching shall be delayed until the turbidity level in Pond 15 is consistent with the 20 percent threshold. In addition, the breaching of Pond 15 shall be scheduled to start during an incoming neap tide to minimize water velocities, thereby minimizing resuspension of sediment within Pond 15. During breaching, it is possible that some scour and associated resuspension could occur within the two channels located within Pond 15; therefore, monitoring of turbidity levels in Pond 15 shall be conducted during the breaching process. If evidence of scour or resuspension of sediment is observed, then work shall be suspended until silt curtains are installed across the interior channels of Pond 15 to minimize turbidity and reduce the amount of resuspended sediment that could exit Pond 15 and enter San Diego Bay. **MM-HYD-2** The Service shall ensure that prior to initiating the excavation of the inlet/outlet channel in the area immediately to the north of Pond 15 in San Diego Bay (as well as within Pond 15 should the levee be breached before the portion of the channel to be located within the boundaries of Pond 15 has been excavated) that a silt curtain has been deployed around the entire inlet/outlet channel work area to minimize turbidity impacts to Bay waters as result of excavation activities. In addition, the Service shall ensure that monitoring is conducted during the excavation process to verify that turbidity levels outside of the area enclosed by the silt curtain are within acceptable levels (i.e., within 20 percent of the turbidity level measured in adjacent areas of the bay undisturbed by project activity). If acceptable levels are exceeded, excavation operations shall be stopped until the Service is assured that corrective measures are in place to reduce turbidity levels outside of the silt curtain to acceptable levels. Following completion of the levee breach and excavation of the inlet/outlet at Pond 15, a qualified engineer shall inspect the site for erosion or sedimentation impacts and the structural integrity of the levee. A report outlining the findings of the inspection, along with the identification of any concerns and recommendations for appropriate actions to address any identified concerns, shall be provided to the Service within 30 days of the inspection. Similarly, silt curtains shall be installed and turbidity levels monitored around construction activities associated with reinforcing bridge piers and when installing rock for bank protection.	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	~~**MM-HYD-1**: To minimize the potential for sediment plumes entering San Diego Bay during the levee breach, the Service shall ensure that the levee is breached only when turbidity levels are within 20% of ambient conditions. Upon final inspection of site conditions by the construction contractor and in coordination with the Service, a silt fence could be installed across the breach for the first 24 hours, if deemed necessary, to further reduce potential distribution of fine-grained material and associated turbidity. Following completion of the levee breach and final construction of the inlet/outlet at Pond 15, a qualified engineer shall inspect the site for erosion or sedimentation impacts and the structural integrity of the levee.~~	
Mishandling or inadvertent release of hazardous materials during construction could adversely affect water quality.	**MM-HYD-~~2~~3**: Prior to commencement of construction activities, the contractor shall prepare to the satisfaction of the Service a hazardous substance management, handling, storage, disposal, and emergency response plan for all phases of construction. The plan shall address where and how construction vehicles will be parked, fueled, and serviced and what actions will be taken to avoid and reduce the risk of accidental release of hazardous materials (e.g., diesel fuel, gasoline, lubricants, coolant, oil solvents, cleaners) during construction activities at the site. The plan shall also identify the worst case spill scenario and list the protocols for spill prevention and response actions that would be taken in the event of unintended spillage of hazardous materials or unintended release of hazardous substances during construction activities. As part of plan implementation, a hazardous materials spill kit shall be maintained on site and a construction monitor shall be designated to ensure that all contractors are in compliance with applicable regulations, including regulations regarding hazardous materials and hazardous wastes, including disposal. Hazardous materials shall not be disposed of or released on the ground, in the underlying groundwater, or in any surface water. Totally enclosed containment shall be provided for all trash. All construction waste, including litter, garbage, and other solid waste, shall be diverted, recycled, or properly disposed of. Petroleum products and other potentially hazardous materials shall be removed to a waste facility permitted to treat, store, or dispose of such materials.	Less than significant
Adverse effects to water quality could occur if sediment is introduced into adjacent wetlands or stormwater systems during material transport within and between sites.	**MM-HYD-~~3~~4:** The Service shall ensure that appropriate measures are implemented by the contractor during the transport of excavated material from the Otay River Floodplain Site to the Pond 15 Site to prevent the release ~~of~~ of excavated material and dust into adjacent upland and wetland habitats and open water areas, as well as to minimize the potential for tracking ~~and the tracking of~~ dirt onto surface streets. Such measures shall include always covering the loads of trucks hauling ~~sediment~~ excavated or other loose materials ~~or~~ on public streets and requiring ~~them~~ trucks hauling materials within the project site to maintain at least 2 feet of freeboard (i.e., vertical space between the top of the load and top of the trailer); watering active haul roads and staging areas as needed to minimize the generation of	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	dust from construction activity; installing wheel washers where vehicles enter and exit unpaved roads; conducting daily street sweeping if visible soil materials are carried to adjacent streets; and establishing construction traffic speeds of 15 miles per hour or less on all unpaved roads. All construction workers shall be educated on proper protocols for loading, transport, and unloading of trucks prior to commencement of soil-hauling activities. If excavated material is to be transported between the Otay River Floodplain Site and the Pond 15 Site via conveyor belt, the following procedures shall be followed: a. While excavated material is being loaded onto the conveyor belt for transport to Pond 15, the Contractor shall ensure that dust suppression is performed in accordance with Rule 55 or per more detailed requirements outlined in the specifications, whichever is more restrictive. b. During or after the excavated material is loaded onto the conveyor belt, the excavated material shall be sprayed with water to prevent material from blowing off the conveyor belt and if necessary, the material will be tarped to prevent dust emission and/or the spilling of excavated material from belt. Tarps or catchment aprons shall be install on the underside of the conveyor belt where it crosses the Otay River or crosses or borders any salt ponds in areas where there would be the potential for the water and substrate within the ponds to be contaminated by spillage from the conveyor belts. c. The process shall be continually monitored to ensure that excavated material is not entering any water bodies, including the Otay River and nearby salt ponds. If necessary to protect water quality, additional measures will be implemented to minimize the loss of excavated material from the belt. Additionally, a soil transport monitoring plan shall be prepared by the construction contractor for review and approval by the Service prior to commencement of soil transport activities. The soil transport monitoring plan shall include operational protocols to ensure that unanticipated spills of transported soil material do not occur from conveyor belt or truck transport operations and monitoring protocols to detect any spills that do occur. The monitoring plan shall also include remediation actions that will be implemented in the event of unintended spill or leakage of excavated material into adjacent wetland areas and salt ponds during soil transport via conveyor belt or truck transport.	

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
~~Adverse effects to water quality could occur if sediment is introduced into adjacent wetlands or stormwater systems during material transport via conveyor belt or slurry pipeline within and between sites.~~	~~**MM-HYD-4:** If soil transport between the Otay River Floodplain Site and the Pond 15 Site would be conducted via conveyor belt or slurry pipeline, a soil transport monitoring plan shall be prepared by the construction contractor for review and approval by the Service prior to commencement of soil transport activities. The soil transport monitoring plan shall include monitoring protocols to ensure that unanticipated spills of transported soil material would not occur from conveyor belt or slurry pipeline operations. The monitoring plan shall include what actions will be taken in the event of unintended spill or leakage of soil or slurry material into adjacent wetland areas and salt ponds during soil transport via conveyor belt or slurry pipeline.~~	Less than significant
Noise		
Noise generated during construction could result in adverse effects to sensitive noise receptors.	**MM-NOI-1**: a. Construction plans shall indicate that the hauling of material from the Otay River Floodplain Site to the Pond 15 Site will only be conducted between the hours of 7 a.m. and 7 p.m. Monday through Saturday and is not permitted on Sundays or between the hours of 7 p.m. and 7 a.m. on any day. b. All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. c. Construction noise reduction methods, such as shutting off idling equipment, maximizing the distance between construction equipment staging areas and occupied residential areas, and use of electric air compressors and similar power tools rather than diesel equipment, shall be used. d. During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive noise receptors. e. During construction, ~~stockpiling~~ construction and vehicle staging areas shall be located as far as practical from noise-sensitive land uses.	Less than significant
Biological Resources		
Adverse effects to biological resources could occur if the project results in the permanent loss of native habitat or plant communities.	**MM-BIO-1**: To avoid or minimize the permanent loss of native habitat or plant communities resulting from project features, any areas that are bridged, reinforced, or widened to accommodate construction equipment would be restored to pre-construction conditions and vegetated with appropriate native plant species once construction is complete per the Construction Methods as described in Section 2.3.2.4 of this environmental impact statement. This includes the 1.36 acres of jurisdictional impacts. To avoid or minimize any long-term impacts to habitat or vegetation, staging	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	areas, access routes, and other disturbed areas shall be decompacted and recontoured to ensure proper site drainage, and revegetated with appropriate native species. Any temporary equipment, structures, or utilities (e.g., water, power) installed at the project site shall be removed at the completion of construction. Impacts from project features that cannot be restored to pre-construction conditions due to the requirements of the construction will be mitigated per the restoration outlined in the FRP. In addition, the temporary impacts (0.62 acre) to the California Coastal Commission-only wetlands (mule fat scrub and Otay River Floodplain Restoration Site) shall be replaced in kind immediately upon completion of construction.	
Adverse effects to wetlands under Alternatives B and C would be significant if mitigation is not adequate.	**MM-BIO-2**: Mitigation for conversion of wetlands from one type to another resulting from implementation of Alternative B (or Alternative C) shall be provided at a mitigation ratio of 1:1. ~~in accordance with the Final Restoration Plan (FRP; Appendix C) at a 1:1 ratio. Mitigation is provided at a 1:1 ratio for the impact to 5.77 acres in the Otay River Floodplain Site and 84.37 acres at the Pond 15 Site. Mitigation shall provide 90.14 acres of tidally influenced wetlands. The combined total for the mitigation is 114.26 acres.~~	Less than significant
Potentially significant impacts may occur if mitigation ratios are not adequately implemented.	**MM-BIO-3**: Mitigation for permanent impacts to wetlands resulting from implementation of Alternative B (or Alternative C) shall be provided at a mitigation ratio of 4:1. Mitigation for permanent impacts to wetlands for high tide refugia resulting from implementation of Alternative B shall be provided at a 2:1 ratio. Mitigation for the raising of the levee at Pond 22/23 shall be provided at a 4:1 ratio. ~~Mitigation for permanent impacts to wetlands resulting from implementation of Alternative B (or Alternative C) shall be provided at mitigation ratios of 1:1 and 4:1. Mitigation for permanent impacts to wetlands for high tide refugia resulting from implementation of Alternative B shall be provided at a 2:1 ratio. Mitigation for the raising of the levee at Pond 22/23 shall be provided at a 4:1 ratio.~~	Less than significant
Adverse effects may occur if erosion results in excessive sedimentation within sensitive habitat areas.	**MM-BIO-4**: Prior to construction, the boundaries of the project site, including staging areas~~,~~ ~~stockpiles~~, and truck haul routes, shall be flagged and protective fencing/silt fencing shall be installed to the satisfaction of the San Diego Bay National Wildlife Refuge (NWR) Manager or designated project biologist as approved by the Service. Silt fencing shall also be installed around all existing cismontane alkali marsh to protect it from sedimentation, excessive runoff, and human intrusion. Construction plans shall include notes or mapping of the location of the protective fencing. In addition, a biological monitor shall be present during the pre-construction meeting and during initial grading of these areas to ensure that no construction activity occurs outside the designated construction boundaries. The biological monitor shall be on site during clearing, grubbing, and grading activities to ensure that the approved limits of disturbance are not exceeded.	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	The biological monitor shall also conduct periodic monitoring of ~~stockpiles,~~ storage areas, and protective fencing. Before construction activities occur in areas containing sensitive biological resources, all workers shall be educated by an approved biologist to recognize and avoid those areas that have been marked as sensitive. In addition to the measures described under MM-HYD-3 and MM-HYD-4, the project biologist shall monitor conditions in sensitive habitat areas located adjacent to ongoing construction to ensure that no impacts related to sedimentation are occurring. If impacts are noted, additional measures shall be developed and implemented to minimize the effects of dust and sedimentation on sensitive resources.	
~~Adverse effects to wetlands under Alternative C would be significant if mitigation is not adequate.~~	~~**MM-BIO-5**: Mitigation measures for conversion of wetlands from one type to another resulting from implementation of Alternative C shall be provided in accordance with the FRP (Appendix C) at a 1:1 ratio.. Mitigation is provided at a 1:1 ratio for the impact to 5.80 acres in the Otay River Floodplain Site and 82.77 acres at the Pond 15 Site. Mitigation shall provide 88.57 acres of tidally influenced wetlands. The combined total for the mitigation is 112.57 acres.~~	~~Less than significant~~
~~Potentially significant impacts under Alternative C may occur if mitigation ratios are not adequately implemented.~~	~~**MM-BIO-6**: Mitigation for permanent impacts to wetlands resulting from implementation of Alternative C shall be provided in accordance with the FRP (Appendix C) at a 4:1 ratio. Mitigation is provided at a 4:1 ratio for the loss of 0.64 acres in the Otay River Floodplain Site and 5.37 acres at the Pond 15 Site and 0.98 acre associated with the project features permanent jurisdictional impacts. Mitigation shall provide 27.96 acres of tidally influenced wetlands. The combined total for the mitigation is 112.57 acres.~~	~~Less than significant~~
Potentially significant impacts under Alternative C occur because full mitigation acreage is not achieved.	**MM-BIO-7**: Permanent impacts to wetlands resulting from implementation of Alternative C would not be entirely offset by the wetland acreage provided as part of the FRP. ~~The total mitigation requirement based on the mitigation ratios and impacts is 116.53 acres. The acreage that is provided per the FRP is 112.57, resulting in a deficit of 3.96 acres.~~ This deficit shall be mitigated through the purchase of wetland mitigation credits at an agency-approved mitigation bank ~~for a total of 3.96 credits~~.	Less than significant
Adverse effects to estuary seablite could occur as a result of restoration.	**MM-BIO-8**: To mitigate for the loss of estuary seablite (*Suaeda esteroa*), a sensitive plant species, from the Otay River Floodplain Site and Pond 15 Site, estuary seablite shall be included in the planting palette. Estuary seablite planting shall be included in the mid-high marsh habitat and shall be planted at a 2:1 ~~(new:impacted)~~ mitigation ratio in newly created mid to high marsh areas, and *L~~l~~yceum californicum* and *Suaeda taxifolia* shall be included in the planting palette for the new wetlands at a 1:1 ratio. A monitoring plan and success criteria for evaluating estuary seablite populations shall be included in the Revegetation Plan required by MM-VIS-1.	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
Adverse effects to special-status bird species could occur during construction.	**MM-BIO-9: Special-status birds.** No earlier than 30 days prior to the commencement of clearing, grubbing, and earth movement on the project site, the NWR Manager and/or project biologist shall conduct focused pre-construction surveys for light-footed Ridgway's rail (*Rallus obsoletus levipes*) and other avian species (such as western snowy plover (*Charadrius ~~a~~nivosus~~lexandrines~~ nivosus*), Belding's Savannah sparrow (*Passerculus sandwichensis beldingi*) and burrowing owl (*Athene cunicularia*)) in the vicinity of the project site. Daily surveys for the presence of rails (family Rallidae) and other sensitive bird species shall be conducted at the Otay River crossing, in the Palomar channel, and in other potential rail habitat areas in the vicinity of the project. If sensitive species are present, an air horn or cracker shells shall be deployed to move the birds off the site prior to commencement of construction activities. If noise proves ineffective, physical presence may be used to haze birds and move them to safer parts of the San Diego Bay NWR. Such monitoring shall continue throughout the day to discourage rails and other birds from moving back into the project site, particularly during periods when construction equipment is not operational, such as during breaks. A subsequent pre-construction survey shall be conducted prior to the commencement of construction activities in subsequent years and daily monitoring should be reinitiated until all construction activity ceases on the project site.	Less Than Significant
Adverse effects to nesting seabirds and shorebirds	**MM-BIO-10:** To avoid impacts to nesting birds, all construction activity in and surrounding the Otay River Floodplain Site and the Pond 15 Site shall be confined to the period between September 30 and February 15, unless work outside this period is authorized by the Refuge Manager.	Less then significant
Adverse effects to East Pacific green sea turtles and/or marine mammals could occur during the breaching of Pond 15.	**MM-BIO-11~~0~~: East Pacific green sea turtle.** A qualified biologist shall be on site during preparation for and implementation of the breaching of the Pond 15 levee to visually monitor for the presence of East Pacific green sea turtle (*Chelonia mydas*) and other sensitive species. The biologist shall have the authority to halt construction when wildlife is observed within or near the project site. Should working vessels (e.g., dredge, barge) be used to breach the Pond 15 levee, travel in the area would adhere to a 5-mile-per-hour speed limit. ~~If pipelines are used, the pipe will be laid such that at least 3 feet of water is available for a turtle to pass through the area at low tide.~~ Land and/or water work crews shall be briefed on how to identify sea turtles and marine mammals that could occur in vicinity of the area affected by the breaching process. The biological monitor shall prepare incident reports of any observed sea turtle activity, and shall provide such reports to the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (Fisheries) within 24 hours of an observation. In the event of an incident involving a marine mammal or sea turtle, the Service shall immediately contact the NOAA Fisheries Southwest Regional Office's Stranding Coordinator, and shall submit a report to NOAA Fisheries within 24 hours.	Less than significant

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Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
Adverse effects to eelgrass could occur during construction.	**MM-BIO-12~~1~~: Eelgrass.** Eelgrass (*Zostera* spp.) surveys, consistent with the requirements outlined in the 2014 California Eelgrass Mitigation Policy (CEMP), shall be conducted to detect any impacts to eelgrass in the vicinity of the proposed action as a result of breaching Pond 15 and/or opening the proposed restoration area on the Otay River floodplain to tidal action. Pre-breaching surveys for Pond 15 shall be conducted in San Diego Bay from the proposed opening of Pond 15 to the southeast corner of the Chula Vista Wildlife Reserve and at an appropriate reference site. Pre-opening surveys for the proposed restoration area on the Otay River floodplain shall be conducted in the Otay River channel between the opening of Pond 10 and the outlet in Pond 11; in the tidal channels of Ponds 10 and 11; and at an appropriate reference site. The same surveys shall be conducted within 30 days of breaching Pond 15 and 30 days of opening the Otay River floodplain tidal basin to the Bay. If impacts to eelgrass from implementation of the proposed action are identified, mitigation shall be provided in compliance with the CEMP. The Service shall develop an Eelgrass Mitigation Plan that includes a description of the impact, identification of a mitigation site that provides mitigation at the appropriate ratio, identification of a suitable local reference site, success criteria for the mitigation site and a monitoring plan for the mitigation and reference sites. Monitoring reports shall be filed with the resource agencies and the Executive Director of the California Coastal Commission.	Less than significant
Cultural Resources		
Adverse effects to historic cultural resources may occur as a result of the project.	**MM-CUL-1:** Prior to commencement of any project excavation, a Memorandum of Agreement between the Service and the State Historic Preservation Office (SHPO) shall be signed that requires the following stipulations to be completed within 1 year of the commencement of project excavation: (1) in addition to the existing Historic American Landscape Survey (HALS) documentation, entitled *Cultural Resources Evaluation for the U.S. Fish and Wildlife Service Otay River Estuary Restoration Project, Otay Mesa, San Diego County, California*, supplemental photodocumentation will be conducted for Ponds 13, 14, and 15 and the northern portion of Pond 20A; (2) oral history research will be conducted to document the history of the salt works and its ultimate inclusion in the San Diego Bay National Wildlife Refuge (NWR), as well as the 100-year-plus salt-making process at this site; (3) an overview of the salt works history will be posted on the NWR website; ~~and~~ (4) an interpretive panel that expands upon the interpretation already developed to inform visitors of the historic significance of the salt works and an interpretive panel developed in partnership with the Sycuan Bancd of the Kumeyaay Nation, which addresses traditional ecological	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	knowledge and resource exploitation of San Diego Bay, will be designed, fabricated, and installed on the NWR; and (5) a link to an appropriate website addressing the history of the Kumeyaay Nation will be posted on the Refuge website.~~will be designed, fabricated, and installed on the NWR.~~	
Adverse effects to historic cultural resources may occur as a result of construction vehicles accessing the Pond 15 Site.	**MM-CUL-2**: The Service shall ensure that prior to the commencement of construction activities at either the Otay River Floodplain Site or the Pond 15 Site, the construction contractor has implemented protective measures such as temporary ballasts, wood beams, or other protective crossing mechanisms to protect the historic rail tracks located along Bay Boulevard at the construction access point to the Pond 15 Site. These temporary protective measures shall be periodically inspected to ensure their integrity and shall remain in place until all construction activity has ceased within the Pond 15 Site.	Less than significant
Excavation could result in adverse effects to archaeological resources.	**MM-CUL-3**: A qualified archaeologist meeting the Secretary of the Interior's Standards and Guidelines: Professional Qualifications Standards and a qualified Kumeyaay cultural monitor shall monitor all grading and subsurface disturbance within the project's area of potential effect. If any cultural resources are discovered during excavation, all earthwork in the vicinity shall be halted and the Service's Regional Historic Preservation Officer shall be immediately contacted to review the materials and recommend a treatment that is consistent with applicable laws and policies. In addition to standard monitoring techniques, for monitoring in wet areas the archaeological and Kumeyaay cultural monitors will select 5-gallon samples of excavated sediment to be screened through 1/8 inch wire mesh screen. Wet sediments may be stockpiled and dried prior to sampling by the monitors, before sediments are re-compacted as fill on site or hauled off site. If artifacts or other resources are identified, then the Project archaeologist will determine, in consultation with the Service's Regional Historic Preservation Officer, if the discovery constitutes a potential intact resource. If potential intact resources are discovered, then the notification and treatment methods outlined in Mitigation Measure MM-CUL-4 would be implemented. The treatment plan would likely require the boundaries of the site to be defined before excavation can be reinitiated in the vicinity of the discovery. The site shall be recorded and evaluated for eligibility for listing in the National Register of Historic Places (NRHP). Once this work is completed, additional measures may be required, depending on the results of the eligibility determination. If	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	any site is encountered that is determined to be eligible for listing in the NRHP, the Service shall consult with the SHPO, federally recognized ~~Tribes~~tribes, and interested parties, and additional measures may be required. The archaeological and Kumeyaay cultural monitor shall provide a monitoring report to the Service's Regional Historic Preservation Officer and the San Diego Bay NWR Manager describing the activities and findings of the monitoring effort within 30 days of the completion of all monitoring activity. Summaries of all actions taken related to the discovery of cultural resources during site excavation shall be provided to the Service's Regional Historic Preservation Officer and the NWR Manager within 15 days of completion of the action.	
Excavation could reveal the presence of archaeological resources that require curation.	**MM-CUL-4**: All archaeological resources encountered on the San Diego Bay NWR shall be handled in accordance with federal regulations. With respect to artifacts collected on the San Diego Bay NWR, either as part of site investigations and recovery or inadvertent discovery during excavation, the Service will ensure proper care of Federally owned and administered archaeological collections, including ensuring that prehistoric and historic artifacts and associated records are deposited in an institution with adequate long-term curatorial capabilities that can provide professional, systematic, and accountable curatorial services on a long-term basis. The curation institution will meet the federal curation standards as required in 36 CFR 79.	Less than significant
Excavation could result in the inadvertent discovery of human remains.	**MM-CUL-5**: In the event of the inadvertent discovery of human remains, the Service's Regional Historic Preservation Officer and the San Diego County Coroner shall be immediately contacted per the Native American Graves Protection and Repatriation Act (NAGPRA) Section (3)(d)(1). All earthwork in the vicinity of the discovery shall be halted and the discovery site shall be secured from further disturbance. If the remains are determined to be Native American, all required NAGPRA inadvertent discovery procedures, including, but not limited to, initiating consultation with the Kumeyaay Cultural Repatriation Committee, developing a plan of action, and repatriating any NAGPRA cultural items (i.e., funerary objects, sacred objects, objects of cultural patrimony) and/or human remains, shall be followed.	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
Traffic, Circulation, and Parking		
Construction activities occurring within public roadways could adversely affect traffic circulation in the affected area.	**MM-TRA-1:** Prior to the commencement of any sediment transport, a construction area traffic control plan or detour plan shall be prepared for each location where construction activities would encroach into the right-of-way of a public roadway. The plans would include, but not be limited to, such features as warning signs, lights, flashing arrow boards, barricades, cones, lane closures, flaggers, pedestrian detours, parking restrictions, and restricted hours during which lane closures would not be allowed (e.g., 7 to 9 a.m. and 4 to 6 p.m.) or as determined by the Service.	Less than significant
Increases in vehicle traffic associated with truck trips could adversely affect traffic circulation in the area during peak traffic hours.	**MM-TRA-2:** The contractor shall schedule all deliveries of construction materials and equipment to the project site to avoid peak-hour traffic congestion (e.g., 7 to 9 a.m. and 4 to 6 p.m.) or as determined by the Service.	Less than significant
Public Utilities and Easements		
Adverse effects to utilities located in the vicinity of the project site could occur during construction.	**MM-UTL-1:** Prior to the completion of final project construction plans, individual utility agencies with utilities located within or adjacent to areas of construction activity shall be contacted to determine the extent and type of temporary protective measures that must be implemented to prevent construction damage to surface and subsurface utilities.	Less than significant
Public Access and Recreational Opportunities		
Users of the Bayshore Bikeway could be adversely affected as a result of project construction.	**MM-REC-1:** 30 days prior to the start of any clearing and grubbing or mobilization(s), whichever occurs first, the contractor shall install warning and notification signs at the following locations: 1) along the Bayshore Bikeway in both directions and 50-feet away in both directions from the construction access point to the Pond 15 Site where vehicles will be crossing the Bayshore Bikeway and 2) at the Main Street/Frontage Road entrance to the Bayshore Bikeway in both directions and 50-feet away in both directions, as well as at the 13th Street entrance onto the east bound segment of the Bayshore Bikeway. The initial signs, to be posted 30 days prior to the start of construction, will alert riders of upcoming construction activity and the potential for future delays due to the presence of construction vehicles. Prior to initiating construction and installing protective materials on the bike path, the initial signs shall be replaced with warning signs informing riders to expect delays due to construction vehicles crossing the bikeway or entering Main Street from the project site, as applicable. Where protective materials will be installed on the bicycle path, the warning signs shall clearly~~ing~~ alert riders to slow down due to the uneven surfaces that the protective materials will create. The contractor shall maintain all signs in good order throughout	Less than significant

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
	each of two construction periods. At the end of each construction period, the Bayshore Bikeway shall be returned to documented pre-project conditions. Prior to commencement of the second year of construction, the same signage procedures shall be followed as described above. Similarly, at 50-feet away from the Main Street entrance (north end) and at and 50-feet away from the Saturn Boulevard entrance (south end) to the Saturn Boulevard bike path initial signs shall be installed 30 days prior to construction to alert riders about the upcoming construction and associated temporary reroute of the bike path, including a map indicating where the reroute will be located, and two weeks prior to construction, signs, with a map of the rerouted section, shall be installed to direct users onto and along the rerouted section of trail. In addition, warning signs shall be installed 50-feet away from Main Street along the reroute informing users of presence of construction vehicles entering and exiting Main Street and the potential for delays. The temporary reroute and all directional signs shall be maintained throughout the two-year construction period. Prior to commencement of the second year of construction, the same warning sign procedures shall be followed as described above. At the end of construction, the Saturn Boulevard bike path shall be returned to documented, pre-project conditions. During active construction, flaggers shall be present to control trucks and bicycle traffic on the Bayshore Bikeway, with flaggers present at the Main Street/Frontage Road entrance to the Bayshore Bikeway, at the construction access point to the Pond 15 Site, and at the northern extent of the rerouted Saturn Boulevard bike path. The contractor shall maintain the bikeway in good repair at all times, frequently remove any dirt or debris deposited on the bikeway or Main Street by trucks and construction equipment, and provide protective barriers as necessary. ~~Prior to any construction activity in the Bayshore Bikeway, the contractor shall install signs to alert riders to the presence of protective materials on the path and of potential intermittent closures during construction. During active construction, flaggers shall be present to control trucks and bicycle traffic on the Bayshore Bikeway, with flaggers present at the Main Street/Frontage Road entrance to the Bayshore Bikeway, as well as at the access point to the Pond 15 Site where the access point crosses the Bikeway. The contractor shall maintain the Bikeway in good repair at all times, provide protective barriers as necessary, and be responsible for restoring the Bikeway to pre-project conditions following completion of construction activities.~~	

Table ES-1
Summary of Significant Environmental Impacts for Alternative B and Alternative C

Impact	Mitigation Measures	Level of Significance After Mitigation
Users of the Saturn Boulevard bike path could be adversely affected as a result of project construction.	**MM-REC-2:** Prior to the commencement of project construction, a reroute of the Saturn Boulevard bike path shall be designed and required approvals obtained~~permitted~~, and prior to any other construction associated with the project, the contractor shall complete the approved temporary reroute of the bike path. Design, permitting, and construction shall be conducted in coordination with the City of San Diego Park and Recreation Department and Streets Division, as well as ~~and~~ County of San Diego Park and Recreation Department. The project construction documents shall indicate that the contractor is responsible for restoring the existing bike path to documented pre-construction conditions following completion of all construction activities.	Less than significant
Economics and Employment		
Operations at the South Bay Salt Works could be adversely affected during construction.	**MM-ECO-1**: To avoid conflicts with ongoing salt works operations, prior to the start of construction, the contractor shall provide the salt works management with an up-to-date construction schedule and timeline of activities related to the restoration project. The salt works management shall also receive monthly updates of construction progress and shall be informed immediately of any changes in the proposed schedule or timeline.	Less than significant

Note: All mitigation measures will be implemented for both Alternative B and Alternative C unless otherwise specified.

ES.5 IMPACTS NOT FOUND TO BE SIGNIFICANT

Based on the analysis presented in the Draft and Final EIS, no significant adverse effects related to agricultural resources, air quality, climate change and sea-level rise, greenhouse gases, mineral resources, vectors and odors, and environmental justice are anticipated as a result of implementing any of the alternatives presented, including the preferred alternative.

ES.6 AREAS OF KNOWN CONTROVERSY

Three public scoping meetings for the project were held at the San Diego County Swiss Club, located at 2001 Main Street in Chula Vista, in 2011 and 2013. Public commenters at the scoping meeting expressed concerns about impacts related to sea-level rise, flooding, and public bird-watching. These concerns have been identified as areas of known controversy and are analyzed in the Draft EIS. Appendix~~ces A and~~ B contains the scoping reports prepared for the scoping meetings, list of attendees, and comment letters that were received. Additional concerns were raised in comment letters received during the public review period. The comment letters and responses are provided in Appendix A of the Final EIS.

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